INDEX

Abies— Page
amabilis, reproduction from seed stored in forest floor ... 3–26
grandis, reproduction from seed stored in forest floor ... 3–26
nobilis, reproduction from seed stored in forest floor ... 3–26
Acid—
hydrocyanic—
amount absorbed by plants during fumigation ... 320
fumigation, effect on—
enzyms of plants ... 321–324
growth of plants ... 328–330
permeability of leaves of plant ... 331–333
photosynthesis of plants ... 326
physiology of plants ... 319–338
translocation of food in plants ... 326–327
transpiration of plants ... 333–338
respiration in plants ... 324–326
gas—
absorption by soil ... 430–434
absorption by water ... 430
effect on—
insects ... 421, 423, 428
plants ... 331–333, 421, 423–428
penetration of plants by ... 319–320
physical-chemical action in soil ... 428
soil fumigation ... 421–436
phosphoric—
determination of content in *Chrysanthemum cinerariaefolium* ... 79–81
relation to manganese content in *Chrysanthemum cinerariaefolium* ... 80–81
relation to presence of lipase in butter ... 444–445
soil, ratios between calcium oxid and iron oxid and aluminium oxid in ... 661–664
Aeration, effect on—
accumulation of nitrate nitrogen in soil ... 53
Jonathan-spot ... 291–293
Agallia sp., effect of hydrocyanic-acid gas on. 423
Agaricus—
arvensis, cause of fungus fairy rings ... 194
campestris, cause of fungus fairy rings ... 202
tabularis—
ammonia in rings of ... 222, 224
carbon in rings of ... 219–220
cause of fungus fairy rings ... 198
distribution of mycelium in soil ... 217
moisture content in rings of ... 226–228
mycelium, effect on soil ... 218–229
nitrogen in rings of ... 222–224
soil-moisture content in rings of ... 226–229, 236–237
Alfalfa. See *Medicago sativa*.
Alkaline soil, ratios between calcium oxid and iron oxid and aluminium oxid in ... 661–664
Alternaria spp., relation of Jonathan-spot to. 288
Aluminium Page
calcium, and iron, relationship in soils ... 662–671
effect of soluble salts on ... 544–546
oxid, ratios, with calcium oxid and iron oxid in soils ... 661–664
Alway, F. J., Klein, M. A., and McDole, G. R. (paper): Some Notes on the Direct Determination of the Hygroscopic Coefficient ... 147–166
Amanita—
muscaria, cause of fungus fairy rings ... 194
phalloides, cause of fungus fairy rings ... 194
Amaranthus blitoides, effect of fungus fairy rings on ... 239
Ammonia, in soil of fungus fairy rings ... 221–225
Anesthetic, effects on permeability of leaves of plants ... 331–333
Antigen, use in diagnosis of glanders ... 67–71
Aphis, grapevine. See *Macrosiphum illinoisensis*.
Aplanobacter—
agropyri, disease caused by, comparison with bacterial-blight of *Hordeum* spp. ... 627
rathayii, disease caused by, comparison with bacterial-blight of *Hordeum* spp. ... 627
Apple. See *Malus sylvestris*.
Apple-scald—
effect of—
aeration on ... 299–308
delayed storage on ... 311–312
humidity on ... 299–308
temperature on ... 295–299
relation—
of the maturity of fruit on ... 308–311
to rot infection ... 294–295
Armsby, H. P., and Fries, J. A. (paper): Influence of the Degree of Fatness of Cattle upon Their Utilization of Feed ... 451–472
Arny, A. C. and Hayes, H. K. (paper): Experiments in Field Technic in Rod Row Tests ... 399–419
Artemisia frigida, effect of fungus fairy rings on ... 237, 240
Ascaris—
lumbricoides—
infection of lungs of man by ... 395–398
life history ... 395–398
suilla, infection of lungs of pigs by ... 395–398
suum, infection of lungs of pig by ... 395–398
Avena sativa—
as green manure, effect on decomposition of organic matter in soil ... 679–697
bacterial disease of, resemblance to bacterial-blight of *Hordeum* spp. ... 629
effect of fungus fairy rings on ... 232
effect of sulphur on ... 94–98, 100–102
Mann's bladeblight of, comparison with bacterial-blight of *Hordeum* spp. ... 627–628
technic in rod row tests ... 402, 406, 409–414

Page

Bacteria—
cause of blight of *Hordeum* spp..... 625–643
relation to milk sickness..... 710–711
Bacterial-Blight of Barley (paper)..... 625–644
Bacterial-blight of *Hordeum* spp.—
comparison with similar bacterial diseases..... 627–628, 629
control..... 641
development..... 628
varietal susceptibility..... 629–631
Bacterium translucens—
causal organism of bacterial-blight of *Hordeum* spp..... 625–644
control..... 641
cultural characters..... 633–635
description..... 636
desiccation..... 636
dissemination..... 639–641
effect on host tissue..... 639
hosts of..... 629
inoculation of *Hordeum* spp. by..... 637–638
isolation..... 631–633
morphology..... 633
n. sp..... 636
overwintering..... 639–641
parasite of *Hordeum* spp..... 625–644
reinfection..... 631–633
susceptibility to mercuric chlorid..... 636
temperature relations..... 635–636
Baker, A. C. (paper): Life History of Macrosiphum illinoisensis, the Grapevine Aphis. 83–90
Barley. See *Hordeum* spp.
Bean, velvet. See *Stizolobium deeringianum*.
Blight, bacterial, of *Hordeum* spp.—
comparison with similar bacterial diseases..... 627–628
control..... 641
development..... 628
occurrence..... 628–631
varietal susceptibility..... 629–631
Blister-rust, white-pine, diagnosis—
importance of haustoria in..... 284–286
importance of mycelial characters in..... 284–286
importance of parasites in..... 284–286
Boletopsis cavipes, cause of fungus fairy rings. 194
Boletus spp., causes of fairy rings..... 194
Boneset, syn. White snakeroot.
Bordeaux mixture, use as control for endrot of *Oxycoccus macrocarpus*..... 39–40
Borer, three-lined fig-tree. See *Ptychodes trilineatus*..... 371–382
Bouteloua gracilis, effect of fungus fairy rings on..... 239–240
Brassica—
oleracea, penetration by *Fusarium conglutinans*..... 576–578
rapa—
dried, analysis..... 359–361
effect of hydrocyanic-acid gas on..... 423–428
reactions of phosphorus in root of..... 359–370
Breeding, plant, technic in..... 399–419
Breeding Sweet Corn Resistant to the Corn Earworm (paper)..... 549–572

Page

Brooks, Charles, and Cooley, J. S. (paper): Effect of Temperature Aeration and Humidity on Jonathan-Spot and Scald of Apples in Storage..... 287–318
Buhach. See *Chrysanthemum cinerariaefolium*.
Bulbilis dactyloides, effect of fungus fairy rings on..... 240
Burn, restocking by seed stored in forest floor. 1–26
Butter—
catalase in..... 446–447
enzyms of..... 437–450
galactase in..... 442–444
lipase in..... 444–445
oxidase content..... 445, 447
peroxidase content..... 446–447

Cabbage. See *Brassica oleracea*.
Calcium—
effect of soluble salts on..... 544–546
iron, and aluminium, relationship in soils. 662–671
oxid, ratios with iron oxid, aluminium oxid in soils..... 661–664
See also Lime.
Caldesiella ferruginosa, cause of fungus fairy rings..... 196
Calvatia—
cyanthiformis—
ammonia in rings of..... 223
cause of fungus fairy rings..... 201–202
nitrogen in rings of..... 223
soil-moisture content in rings of..... 228
fragilis, cause of fungus fairy rings..... 202
polygonia, cause of fungus fairy rings..... 202
Camphor. See *Cinnamomum camphora*.
Cantharellus—
aurantiacus, cause of fungus fairy rings..... 194
cibarius, cause of fungus fairy rings..... 194
cinerus, cause of fungus fairy rings..... 194
Carbohydrate, fermentation in cattle, relation of production of combustible gases to..... 455
Carbon—
amount evolved as carbon dioxid in treated soils..... 680–697
content in soil of fungus fairy rings..... 219–220
dioxid—
excretion in cattle..... 469
See also Carbon.
loss in excreta of cattle..... 453–455, 468
Casease. See Galactase.
Catalase—
content of butter..... 446–447
content of milk..... 446
in plants, effect of hydrocyanic acid on .. 323–324
Catastoma subterraneum, cause of fungus fairy rings..... 194, 202
Cattle—
combustible-gas production in—
relation to amount of feed..... 455
relation t carbohydrate fermentation..... 455
energy expenditure as result of feed consumption..... 455–460
energy, metabolizable..... 456–457, 460
excretions in urine..... 454–455, 467–468

Page

Cattle—Continued.
feed—
digestibility ... 453–454
net energy values ... 461–463
relation of body increase to ... 457
relation to chemical energy ... 457
relation to metabolizable energy ... 456–457
utilization, influence of fatness on ... 451–472
gaseous excretion ... 453, 469
heat emission and production ... 458–459, 471–472
lethal dose of *Eupatorium urticaefolium* for ... 706
maintenance requirement ... 460–461
methane production in ... 455, 469
production of epidermal tissue in ... 468
temperature during fattening ... 470–472
toxic dose of *Eupatorium urticaefolium* on ... 706
See also Cow, dairy; Steer.
Cedar, western red. See *Juniperus occidentalis*.
Cenangium urceolatum, resemblance to *Fusicoccum putrefaciens* ... 39
Chenopodium incanum, effect of fungus fairy rings on ... 239
Chloridea obsoleta—
breeding of *Zea mays* for resistance to ... 549–572
injury to *Zea mays* by ... 549–572
instincts ... 569–570
protective characters of *Zea mays* against ... 550–568
Chloroform—
influence on proteolysis of milk ... 440–441
permeability of leaves of *Lycopersicon esculentum* under influence of ... 332
Chrysanthemum—
cinerariaefolium, analyses ... 79–81
sp., effect of hydrocyanic-acid gas on ... 426–428
Cinnamomum camphora—
host plant of *Tylenchus penetrans* ... 27–30
injury caused by *Tylenchus penetrans* ... 30
Clavaria sp., cause of fungus fairy rings ... 194
Clawson, A. B., and Marsh, C. D. (paper): Eupatorium urticaefolium as a Poisonous Plant ... 699–715
Climate, relation to growth of—
cranberry fungi ... 522
Oxycoccus macrocarpus ... 521–529
Clitocybe spp., causes of fairy rings ... 194, 195
Clover—
as green manure, effect on decomposition of organic matter in soil ... 679–697
red. See *Trifolium pratense*.
Cobb, N. A. (paper): A New Parasitic Nema, Tylenchus penetrans, Found Infesting Cotton and Potatoes ... 27–33
Colley, Reginald H. (paper): Diagnosing White-Pine Blister-Rust from Its Mycelium ... 281–286
Collins, G. N. and Kempton, J. H. (paper): Breeding Sweet Corn Resistant to the Corn Earworm ... 549–572
Collybia—
confluens, cause of fungus fairy rings ... 195
sp., cause of fungus fairy rings ... 195
Complement fixation, use in conjunction with conglutination test for glanders ... 65–74
Concrete slabs, reinforced, tests ... 505–520

Page

Conglutination test, technic ... 67–72
Conglutination Test for the Diagnosis of Glanders (paper) ... 65–75
Cooley, J. S., and Brooks, Charles (paper): Effect of Temperature Aeration and Humidity on Jonathan-Spot and Scald of Apples in Storage ... 287–318
Corn. See *Zea mays*.
Corn earworm. See *Chloridea obsoleta*.
Cortinarius spp., causes of fairy rings ... 195
Cotton. See *Gossypium* spp.
Cow—
dairy, influence of age on milk ... 647–656
See also Cattle.
serum. See Serum, cow.
Cranberry. See *Oxycoccus macrocarpus*.
Cronartium ribicola—
causal organism of white-pine blister-rust ... 281–286
character of mycelium ... 284–285
method of parasitism ... 285–286
Cryptanthe crassisepala, effect of fungus fairy rings on ... 239

Dahlberg, A. C., and Thatcher, R. W. (paper): Enzyms of Milk and Butter ... 437–450
Decomposition of Green and Stable Manures in Soil (paper) ... 677–698
Deerwort, syn. White snakeroot.
DeOng, E. R. (paper): Hydrocyanic-Acid Gas as a Soil Fumigant ... 421–436
Diabrotica soror, effect of hydrocyanic-acid gas on ... 423
Diagnosing White-Pine Blister-Rust from Its Mycelium (paper) ... 281–286
Diaporthe phaseolorum—
cause of pobdlight of *Phaseolus lunatus* ... 473–504
cultural characteristics ... 492–494
dissemination ... 491–492
effect of light on growth ... 494–495
influence of temperature on growth ... 495
influence of toxic agents on germination of spores ... 496–500
inoculation of *Phaseolus lunatus* with ... 485–488
mode of infection of *Phaseolus lunatus* by ... 489–491
viability ... 489
Drainage—
effect of pumping from shallow well in relation to ... 339–357
relation to rainfall ... 348–279
Duff, effect of burning on natural reproduction of seed ... 1–26

Earworm, corn. See *Chloridea obsoleta*.
Eckles, C. H., and Palmer, L. S. (paper): Influence of the Age of the Cow on the Composition and Properties of Milk and Milk Fat ... 645–658
Effect of Pumping from a Shallow Well on the Ground-Water Table (paper) ... 339–357
Effect of Sulphur on Different Crops and Soils (paper) ... 91–103
Effect of Temperature Aeration and Humidity on Jonathan-Spot and Scald of Apples in Storage (paper) ... 287–318
Elder, black. See *Sambucus canadensis*.
Endrot of Cranberries (paper) ... 33–42

Page

Endrot of *Oxycoccus macrocarpus*—
causal organism ... 36–38
characteristics ... 36
control ... 39–40
Energy—
chemical, relation to feed consumed by cattle ... 457
loss in excreta of cattle ... 454–456, 462–463, 468
metabolizable, relation to feed consumed by cattle ... 456–457
Enzym—
in butter, relation to deterioration during storage ... 447
milk and butter, comparison ... 447
Enzyms of Milk and Butter (paper) ... 437–450
Errata ... IV
Ether, effect on permeability of leaves of *Lycopersicon esculentum* ... 332
Eupatorium—
ageratoides, syn. *Eupatorium urticaefolium*.
perfoliatum, resemblance to *Eupatorium urticaefolium* ... 700
urticaefolium—
cause of milk sickness ... 699–716
description ... 700
distribution ... 700
lethal dose ... 706
resemblance of *Eupatorium perfoliatum* to ... 700
toxic dose ... 706
use as medicine ... 700
Eupatorium urticaefolium as a Poisonous Plant (paper) ... 699–716
Evaporation, moisture, effect on movement of soluble salts through soils ... 543–544
Experiments in Field Technic in Rod Row Tests (paper) ... 399–419

Fairbank, H. S., and Goldbeck, A. T. (paper): Tests of a Large-Sized Reinforced-Concrete Slab Subjected to Eccentric Concentrated Loads ... 505–520
Fairy ring, fungus. See Fungus fairy ring.
Farm crop plot tests, technic in ... 399–419
Feed, cattle—
digestibility ... 453–454, 465–467
net energy values in ... 461–463
Festuca octoflora, effect of fungus fairy rings on ... 229–237, 239–240
Ficus carica, host plant of *Ptychodes trilineatus* ... 371–382
Field technic in rod row tests ... 399–419
Fig. See *Ficus carica*.
Fir—
Douglas. See *Pseudotsuga taxifolia*.
lowland or "grand." See *Abies grandis*.
noble. See *Abies nobilis*.
silver. See *Abies amabilis*.
whitebark. See *Pinus albicaulis*.
Fire, forest—
effect on natural reproduction of seed ... 1–26
See also Burn.
Flax. See *Linum usitatissimum*.
Flaxwilt: A Study of the Nature and Inheritance of Wilt Resistance (paper) ... 573–606
Flaxwilt. See also *Fusarium lini*.

Page

Florida velvet bean. See *Stizolobium deeringianum*.
Fly, house. See *Musca domestica*.
Forest, natural reproduction of ... 1–26
Foster, W. D., and Ransom, B. H. (paper): Life History of Ascaris lumbricoides and Related Forms ... 395–398
Freezing-point lowering, induced by soluble salts, determination of ... 535–545
Fries, J. A., and Armsby, H. P. (paper): Influence of the Degree of Fatness of Cattle upon Their Utilization of Feed ... 451–472
Fumigation—
plant, with hydrocyanic-acid gas ... 319–338
soil—
with hydrocyanic-acid gas ... 421–426
with sodium cyanid ... 432–434
Fungus, relation of temperature to growth on *Oxycoccus macrocarpus* ... 521–529
Fungus, cause of fairy rings ... 191–246
Fungus fairy ring—
advance ... 204–208, 214–217
age ... 214–217
ammonia in soil of ... 221–225
carbon in soil of ... 219–220
cause ... 192–196
death of vegetation in ... 236–237
distribution ... 203–204
effect of—
cultivation on ... 233
soil moisture on fruiting bodies ... 208–217
weather on fruiting bodies ... 208–217
effect on—
chlorophyll content of plants in ... 235–236
grazing ... 233
physical changes in soil ... 225
revegetation ... 238–240
vegetation ... 229–237
eradication ... 237–238
nitrogen in soil of ... 220
soil-moisture in ... 226–229, 236–237
stimulated growth in ... 233–235
succession induced by ... 238–240
types ... 196–203
Fungus Fairy Rings in Eastern Colorado and Their Effect on Vegetation (paper) ... 191–246
Fusarium—
conglutinans—
penetration of *Brassica oleracea* by ... 576–578
penetration of *Linum usitatissimum* by ... 576–578
lini—
causal organism of flaxwilt ... 573–606
inheritance through hybridization of resistance to ... 588–600
mode of penetration of *Linum usitatissimum* by ... 575–579
probable factors in wilting of *Linum usitatissimum* by ... 581
relation to tissues of *Linum usitatissimum* ... 579–588
putrefaciens—
causal organism of endrot of *Oxycoccus macrocarpus* ... 36–38
control ... 39–40
cultural characters ... 39–41

Page

Fusarium—Continued
putrefaciens—continued
description ... 36–38
distribution ... 35
life history ... 38–39
n. sp ... 36
parasite of *Melilotus alba* ... 39
resemblance of *Cenangium urceolatum* to. 39
temperature index of ... 525–528

Gainey, P. L., and Metzler, L. F. (paper): Some Factors Affecting Nitrate-Nitrogen Accumulation in Soil ... 43–64
Galactase—
in butter ... 442–444
in milk ... 442
Gas—
combustible, production in cattle—
relation to carbohydrate fermentation .. 455
relation to feed ... 455
hydrocyanic-acid. See Acid, hydrocyanic, gas.
Genetic factors of *Pisum* spp., interrelation of ... 167–190
Georgia velvet bean. See *Stizolobium deeringianum*.
Geranium. See *Pelargonium* spp.
Gerlaugh, P., and Severson, B. O. (paper): A Statistical Study of Body Weights, Gains, and Measurements of Steers during the Fattening Period ... 383–394
Germination—
effect of hydrocyanic-acid gas on ... 423–425
seed stored in forest floor ... 1–26
Glanders, conglutination test for diagnosis .. 65–75
Glomerella cingulata—
relation of apple-scald to infection by 294–295
temperature index of ... 525–528
Goldbeck, A. T., and Fairbank, H. S. (paper): Tests of a Large-Sized Reinforced-Concrete Slab Subjected to Eccentric Concentrated Loads ... 505–520
Gossypium spp.—
host of *Tylenchus penetrans* ... 27, 29, 30
injury caused by *Tylenchus penetrans* ... 29, 30
Grains, small, technic in rod row tests 399–419
Grape, wild. See *Vitis* spp.
Grapevine aphis. See *Macrosiphum illinoisensis*.
Grass—
effect of fungus fairy rings on ... 191–246
orchard, Rathay's disease of, comparison with bacterial-blight of *Hordeum* spp 627
western-wheat, O'Gara's disease of, comparison with bacterial-blight of *Hordeum* spp ... 627
Grindelia squarrosa, effect of fungus fairy rings on ... 237
Ground-water table, effect of pumping from shallow well on ... 339–357
Gutierrezia sarothrae, effect of fungus fairy rings on ... 237, 240

Hammett, F. S., et al. (paper): Reactions of the Phosphorus of the Thickened Root of the Flat Turnip ... 359–370

Page

Harter, L. L. (paper): Podlight of the Lima Bean Caused by Diaporthe phaseolorum . 473–504
Hartwell, B. L., Hammett, F. S., and Wessels, P. H. (paper): Reactions of the Phosphorus of the Thickened Root of the Flat Turnip ... 359–370
Hayes, H. K. and Arny, A. C. (paper): Experiments in Field Technic in Rod Row Tests ... 399–419
Hebeloma crustuliniforme, cause of fungus fairy rings ... 195
Hedeoma nana, effect of fungus fairy rings on ... 229–237
Helminthosporium gramineum, disease caused by, resemblance to bacterial-blight of *Hordeum* spp ... 625–627
Hemlock, western. See *Tsuga heterophylla*.
Hilgard, E. W., method for determination of hygroscopic coefficient ... 150–151, 152, 163–164
Hofmann, J. V. (paper): Natural Reproduction from Seed Stored in the Forest Floor .. 1–26
Hordeum spp.—
bacterial-blight of—
appearance ... 625–627
comparison with similar bacterial diseases ... 627–628, 629
development ... 628
occurrence ... 628–631
varietal susceptibility ... 629–631
host plant of *Bacterium translucens* ... 625–644
inoculation with *Bacterium translucens* 637–638
Hordeum vulgare, technic in rod row tests .. 402–417
Horse serum. See Serum, horse.
Horton, J. R. (paper): Three-Lined Fig-Tree Borer ... 371–382
House fly. See *Musca domestica*.
Humidity, effect on Jonathan-spot ... 291–293
Hybridization, inheritance of wilt resistance of *Linum usitatissimum* through ... 588–600
Hydnum spp., causes of fairy rings ... 195, 196
Hygrophorus virgineus, cause of fungus fairy rings ... 195
Hydrocyanic acid. See Acid, hydrocyanic.
Hydrocyanic-acid gas. See Acid, hydrocyanic, gas.
Hydrocyanic-Acid Gas as a Soil Fumigant (paper) ... 421–436
Hydrogen peroxid, determination of catalase—
in butter by reaction with ... 446
in milk by reaction with ... 446
Hygroscopic coefficient—
direct determination in soil ... 147–165
Hilgard's method for determination in soil ... 150, 151, 152, 163–164
influence of—
grinding on ... 159
size of containers on ... 159–160
temperature on ... 156–159
time of exposure on ... 156

Indian corn. See *Zea mays*.
Indian sanicle, syn. White snakeroot.
Influence of the Age of the Cow on the Composition and Properties of Milk and Milk Fat (paper) ... 645–658

Page

Influence of the Degree of Fatness of Cattle upon Their Utilization of Feed (paper).. 451-472
Inheritance Studies in Pisum. IV. Interrelation of the Genetic Factors of Pisum (paper)..... 167-190
Inocybe sp., cause of fungus fairy rings..... 195
Insect flower. See *Chrysanthemum cinerariaefolium*.
Insect powder. See *Chrysanthemum cinerariaefolium*.
Iron in soils—
effect of soluble salts on..... 544-546
relation to calcium and aluminum.... 662-671
Iron oxid, ratios with calcium oxid and aluminum oxid in soils..... 661-664
Irrigation—
effect of pumping from shallow well in relation to..... 339-357
effect on fungus fairy rings..... 237

Johnson, A. G., et al. (paper): Bacterial-Blight of Barley..... 625-644
Jonathan-spot—
description..... 288
effect of—
aeration on..... 291-293
humidity on..... 291-293
maturity of fruit on..... 293-294
temperature on..... 289-291
relation to apple rots..... 288
Jones, L. R., Johnson, A. G., and Reddy, C. S. (paper): Bacterial-Blight of Barley... 625-644
Juniperus spp., reproduction from seed stored in forest floor..... 1-26

Kempton, J. H., and Collins, G. N. (paper): Breeding Sweet Corn Resistant to the Corn Earworm..... 549-572
Klein, M. A., et al. (paper): Some Notes on the Direct Determination of the Hygroscopic Coefficient..... 147-166

Lactacius insulsus, cause of fungus fairy rings. 195
Lactalbuminase. See Galactase.
Lactarius—
piperatus, cause of fungus fairy rings..... 195
torminosus, cause of fungus fairy rings..... 195
Lactuca sativa, effect of hydrocyanic-acid gas..... 423-428
Lamb—
growth during first year..... 607-624
measurements..... 608-624
Lappula occidentale, effect of fungus fairy rings on..... 239
Leaf hopper. See *Agallia* sp.
Lepiota—
morgani, cause of fungus fairy rings..... 203
procera, cause of fungus fairy rings..... 195
Lettuce. See *Lactuca sativa*.
Life History of Ascaris lumbricoides and Related Forms (paper)..... 395-398
Life History of Macrosiphum illinoisensis, the Grapevine Aphis (paper)..... 83-90
Lime—
conservation of by manure..... 686
effect on decomposition of green manure. 680-698
effect on decomposition of stable manure. 680-698
requirement in acid soils..... 665-666

Page

Linum usitatissimum—
inheritance of wilt resistance through hybridization..... 588-600
loss of, caused by *Fusarium lini*..... 573
penetration by *Fusarium* spp..... 575-579
probable factors in wilting of..... 581
relation of tissues to *Fusarium lini*..... 579-588
wilt of..... 573-606
Lipase, in butter..... 444-445
Lipman, C. B., method for determination of hygroscopic coefficient..... 151
Louisiana, southern, run-off from drained prairie lands of..... 247-279
Lungs, infection by *Ascaris* spp..... 395-398
Lycoperdon spp., causes of fairy rings..... 195-202
Lycopersicon esculentum, effect of—
anesthetics on permeability of leaves of.. 331-333
hydrocyanic-acid fumigation on—
composition of..... 328
enzymic activities of..... 321-324
growth of..... 328-330
permeability of leaves of..... 331-333
respiration of..... 324-326
translocation of food in..... 326-327
transpiration of..... 333-335

Macrosiphum illinoisensis—
distribution..... 83
food plants..... 83
life history..... 83-90
nomenclature..... 83
Magnesium in soils, effect of soluble salts on..... 544-546
Malus sylvestris—
relation of Jonathan-spot to rots of..... 288
scald of..... 294-295
Malvastrum coccineum, effect of fungus fairy rings on..... 237, 239
Manganese, occurrence in *Chrysanthemum cinerariaefolium*..... 77-82
Mann's bladeblight of oats, comparison with bacterial-blight of *Hordeum* spp..... 627-628
Manure—
green, decomposition in soil..... 677-698
stable, decomposition in soil..... 677-698
Marasmius—
oreades, cause of fungus fairy rings..... 195, 202
urens, cause of fungus fairy rings..... 195
Marsh, C. D. and Clawson, A. B. (paper): Eupatorium urticaefolium as a Poisonous Plant..... 699-715
McCool, M. M., and Wheeting, L. C. (paper): Movement of Soluble Salts through Soils. 531-547
McDole, G. R., et al. (paper): Some Notes on the Direct Determination of the Hygroscopic Coefficient..... 147-166
McDonnell, C. C., and Roark, R. C. (paper): Occurrence of Manganese in Insect Flowers and Insect Flower Stems..... 77-82
Medicago sativa, effect of—
hydrocyanic-acid gas on..... 423-428
sulphur on..... 94-103
Melilotus alba, host plant of *Fusicoccum putrefaciens*..... 39
Methane, production of, in cattle..... 455, 469
Metzler, L. F. and Gainey, P. L. (paper): Some Factors Affecting Nitrate-Nitrogen Accumulation in Soil..... 43-64

Page

Milk—
catalase in... 446
composition of, in aged cows... 655–656
enzyms... 437–450
fat, influence of age of cow on... 647–655
galactase in... 442
influence of age of cow on... 645–657
oxidase in... 445
peroxidase in... 446–447
properties of, in aged cows... 655–656
sickness, disease of animals caused by *Eupatorium urticaefolium*... 699–716
Moisture, soil—
effect of variations upon nitrate accumulation... 48–57
effect on *Agaricus tabularis*... 226–229, 236–237
hygroscopic, rate of loss... 153–154
relation to movement of soluble salts... 543–544
Moore, William, and Willaman, J. J. (paper): Studies in Greenhouse Fumigation with Hydrocyanic Acid... 319–338
Morchella—
esculenta, cause of fungus fairy rings... 195
hybrida, cause of fungus fairy rings... 195
Movement of Soluble Salts through Soils (paper)... 531–547
Mule serum. See Serum, mule.
Musca domestica, effect of hydrocyanic-acid gas on... 422–423

Natural Reproduction from Seed Stored in the Forest Floor (paper)... 1–26
Nature and Rate of Growth in Lambs During the First Year (paper)... 607–624
Nema—
method of measuring... 33
parasitic... 27–33
Nematode. See Nema.
New Parasitic Nema, Tylenchus penetrans, Found Infesting Cotton and Potatoes, A (paper)... 27–33
Nicotiana tabacum, effect of hydrocyanic-acid fumigation on photosynthesis of... 326
Nitrate-nitrogen, factors affecting accumulation in soil... 43–64
Nitrification, soil... 43–64
Nitrogen—
determination in *Chrysanthemum cinerariaefolium*... 79–81
determination in fungus fairy ring soil... 220–225
loss in excreta of cattle... 453–455, 468
nitrate, factors affecting accumulation in soil... 43–64
relation to manganese content in *Chrysanthemum cinerariaefolium*... 80–81
soluble—
influence of chloroform on proteolysis of milk as indicated by... 440–441
presence of galactase in butter as shown by increase of... 442–444
presence of galactase in milk as shown by increase of... 442–444

Oats. See *Avena sativa*.
Occurrence of Manganese in Insect Flowers and Insect Flower Stems (paper)... 77–82

Page

O'Gara's disease of western wheat-grass, comparison with bacterial-blight of *Hordeum* spp... 627
Okey, C. W. (paper): Run-off from the Drained Prairie Lands of Southern Louisiana... 247–279
Orchard-grass. See Grass, orchard.
Oxidase—
content of butter... 445, 447
content of milk... 445
in plants, effect of hydrocyanic acid on... 321–323
Oxycoccus macrocarpus—
daily normal temperatures in regions of... 523
endrot of—
causal organism... 36–38
characteristics... 36
control... 39–40
host plant of *Fusicoccum putrefaciens*... 35–41
length of frostless season in regions of... 522
rainfall in regions of... 521–522
relation of climate to fungus growth... 521–529
relation of rainfall to fungus growth... 521–529

Palmer, L. S. and Eckles, C. H. (paper): Influence of the Age of the Cow on the Composition and Properties of Milk and Milk Fat... 645–658
Paxillus involutus, cause of fungus fairy rings. 196
Pea. See *Pisum* spp.
Penicillium expansum, relation of—
apple-scale to infection by... 394–395
Jonathan-spot to... 388
Pelargonium spp., effect of hydrocyanic-acid fumigation on—
translocation of food in... 326–327
photosynthesis of... 326
Peroxidase content of milk and butter... 446–447
Phaseolus lunatus—
inoculation with *Diaporthe phaseolorum*... 485–488
mode of infection by *Diaporthe phaseolorum*... 489–491
podblight of—
caused by *Diaporthe phaseolorum*... 473–504
control... 500
description... 475–476
dissemination... 491–492
distribution... 474
etiology... 476–477
loss... 474
morphology... 479
prevalence... 474
resemblance to leafspot... 475
Phleum pratense, bacterial disease of, resemblance to bacterial-blight of *Hordeum* spp... 629
Phoma subcircinata, syn. *Diaporthe phaseolorum*.
Phosphoric acid. See Acid, phosphoric.
Phosphorus, reactions in root of *Brassica rapa*... 359–370
Phylloxera vastatrix, effect of hydrocyanic-acid gas on... 423
Picea engelmanni, reproduction from seed stored on forest floor... 15–26
Piemeisel, R. L., and Shantz, H. L. (paper): Fungus Fairy Rings in Eastern Colorado and their Effect on Vegetation... 191–246

Page

Pig, infection by *Ascaris* spp..... 398
Pine—
knobcone. See *Pinus attenuata.*
lodgepole. See *Pinus murrayana.*
western white. See *Pinus monticola.*
western yellow. See *Pinus ponderosa.*
white. See *Pinus strobus.*
Pinus—
albicaulis, reproduction from seed stored in forest floor.....15–26
attenuata, reproduction from seed stored in forest floor..... 25–26
monticola, reproduction from seed stored in forest floor..... 1–26
murrayana, reproduction from seed stored in forest floor..... 15–26
ponderosa, reproduction from seed stored in forest floor..... 15–26
strobus, host plant of *Cronartium ribicola*.. 281–286
Piper, C. V., and Shull, J. M. (paper): Structure of the Pod and the Seed of the Georgia Velvet Bean, Stizolobium deeringianum.. 673–676
Pisum spp.—
genetic factors—
effect of environment on expression of.. 171–173
inheritance studies..... 167–190
interrelation..... 167–190
linkage in..... 177
Plantago purshii, effect of fungus fairy rings on..... 229–237, 239–240
Plant breeding, technic in..... 399–419
Pluteus cervinus, cause of fungus fairy rings.. 196
Pneumonia, caused by Ascaris..... 397–398
Podblight of the Lima Bean Caused by Diaporthe phaseolorum, by L. L. Harter (paper)..... 473–504
Poisoning, by *Eupatorium urticaefolium*.... 699, 711
Poolroot, syn. White snakeroot.
Poolwort, syn. White snakeroot.
Potassium—
chlorid change in soil induced by 539–541, 543–544
cyanid, permeability of leaves of *Lycopersicon esculentum* under influence of..... 332
Potato. See *Solanum tuberosum.*
Potter, R. S., and Snyder, R. S. (paper): Decomposition of Green and Stable Manures in Soil..... 677–698
Prairie, drained, run-off from..... 247–279
Protein, milk, results of estimation of hydrolysis by ninhydrin method..... 440
Proteolysis, milk, influence of—
chloroform on..... 440–441
sodium chlorid on..... 441–442
Pseudomonas avenae, disease caused by, comparison with bacterial-blight of *Hordeum* spp..... 627–628
Pseudotsuga taxifolia, reproduction from seed stored in forest floor..... 1–26
Psoralea tenniflora, effect of fungus fairy rings on..... 237
Ptychodes trilineatus—
biology 372–380
control..... 381–382
distribution..... 371
food plant of..... 371–382

Page

Ptychodes trilineatus—Continued
habits..... 372–380
injuriousness..... 371–372
life history..... 372–380
Pyrethrum. See *Chrysanthemum cinerariaefolium.*
Pyrogallol, estimation of oxidase in milk as shown by oxygen absorption of..... 445

Rainfall, relation to drainage..... 248–27
Ransom, B. H., and Foster, W. D. (paper): Life History of Ascaris lumbricoides and Related Forms..... 395–398
Rathay's disease of orchard-grass, comparison with bacterial-blight of *Hordeum* spp..... 627
Reactions of the Phosphorus of the Thickened Root of the Flat Turnip (paper)..... 359–370
Reddy, C. S., et al. (paper): Bacterial-Blight of Barley..... 625–644
Reproduction from seed stored in forest floor. 1–26
Richweed, syn. White snakeroot.
Rietz, H. L., and Smith, L. H. (paper): A Statistical Study of Some Indirect Effects of Certain Selections in Breeding Indian Corn..... 105–146
Ritzman, E. G. (paper): Nature and Rate of Growth in Lambs During the First Year. 607–624
Roark, R. C., and McDonnell, C. C. (paper): Occurrence of Manganese in Insect Flowers and Insect Flower Stems..... 77–82
Rod row tests—
competition between adjacent rows..... 404–412
technic in..... 399–419
value of replications for..... 412–417
Rot, apple—
apple-scald as source of..... 294–295
relation to Jonathan-spot..... 288
Run-Off from the Drained Prairie Lands of Southern Louisiana (paper)..... 247–279
Rust, white-pine blister. See Blister-rust, white-pine.
Rye. See *Secale cereale.*

Salts, soluble, movement through soils..... 531–547
Sambucus canadensis, reproduction from seed stored in forest floor..... 21–26
Sanicle—
Indian, syn. White snakeroot.
white, syn. White snakeroot.
Scald, apple. See Apple-scald.
Schedonnardus paniculatus, effect of fungus fairy rings on..... 239
Schoening, H. W. (paper): Conglutination Test for the Diagnosis of Glanders..... 65–75
Sclerotinia cinerea, relation of—
apple-scald to infection by..... 294–295
Jonathan-spot to..... 288
Secale cereale, bacterial disease of, resemblance to bacterial-blight of *Hordeum* spp..... 629
Seed in forest floor—
reproduction from..... 1–26
viability..... 1–26
Serum—
cow, titration..... 68–72
horse, test of, in diagnosis of glanders..... 72–73
mule, test of, in diagnosis of glanders..... 73–74

Page

Severson, B. O., and Gerlaugh, P. (paper): A Statistical Study of Body Weights, Gains, and Measurements of Steers during the Fattening Period 383-394
Shantz, H. L., and Piemeisel, R. L. (paper): Fungus Fairy Rings in Eastern Colorado and their Effect on Vegetation 191-246
Sharp, L. T., method for determination of hygroscopic coefficient 151
Shear, C. L. (paper): Endrot of Cranberries. 35-42
Shedd, O. M. (paper): Effect of Sulphur on Different Crops and Soils 91-103
Sheep—
  lethal dose of *Eupatorium urticaefolium* 706
  measurements 608-624
  red blood corpuscles, use in diagnosis of glanders 67-71
  toxic dose of *Eupatorium urticaefolium* for .. 706
  weight 608, 611, 612, 614
  See also Lamb.
Shull, J. M., and Piper, C. V. (paper): Structure of the Pod and the Seed of the Georgia Velvet Bean, Stizolobium deeringianum. 673-676
Silica, acid-soluble, determination of in soils 664-665
Siphonophora viticola, syn. *Macrosiphum illinoisensis*.
Sitanion hystrix, effect of fungus fairy rings on 239
Slab, concrete, tests 505-520
Slows, disease of animals caused by *Eupatorium urticaefolium* 699-716
Smith, L. H., and Rietz, H. L. (paper): A Statistical Study of Some Indirect Effects of Certain Selections in Breeding Indian Corn 105-146
Snakeroot, white. See *Eupatorium urticaefolium*.
Snyder, R. S. and Potter, R. S. (paper): Decomposition of Green and Stable Manures in Soil 677-698
Sodium—
  carbonate, changes in soil induced by. 542, 545, 546
  chlorid, changes in soil induced by 535-540, 544-546
  cyanid, fumigation of soil with 432-434
Soil—
  absorption of hydrocyanic-acid by 430-434
  acid—
    lime requirement of 665-666
    ratios between calcium oxid and iron oxid plus aluminum oxid in 661-664
  alkaline, ratios between calcium oxid and iron oxid plus aluminium oxid in 661-664
  character of, used in pumping from shallow well 339-340
  decomposition of manure in 677-698
  distribution of mycelium of *Agaricus tabularis* in 217
  effect of—
    compactness upon nitrate accumulation. 46-63
    depth of column upon nitrate accumulation 46-63
    on fruiting bodies in fungus fairy rings. 208-217
    sulphur on 91-103
  factors affecting accumulation of nitrate nitrogen in 43-64

Page

Soil—Continued
  fumigation—
    with hydrocyanic-acid gas 421-436
    with sodium cyanid 432-434
  Hilgard's method for determination of hygroscopic coefficient in 150, 151, 152, 163-164
  hygroscopic coefficient—
    influence of—
      grinding on 159
      of containers on 159-160
      temperature on 156-159
      time of exposure on 156
    Lipman and Sharp's method for determination of hygroscopic coefficient in 151
  moisture, effect on—
    Agaricus tabularis 236-237
    nitrate accumulation 48-63
  movement of soluble salts through 531-547
  mycelium of fairy rings in 217-229
  physical changes in, effect of fungus fairy rings on 225
  physical-chemical action of hydrocyanic-acid gas in 428-434
  rate of loss of hygroscopic moisture in 153-154
  treated, amount of carbon evolved as carbon dioxid in 680-697
Soil Acidity and the Hydrolytic Ratio in Soils (paper) 659-672
Soja max—
  effect of sulphur on 93, 95-103
  protein in 102
Solanum tuberosum—
  host of *Tylenchus penetrans* 27, 29, 30, 31
  injury caused by *Tylenchus penetrans* 29, 30
Some Factors Affecting Nitrate-Nitrogen Accumulation in Soil (paper) 43-64
Some Notes on the Direct Determination of the Hygroscopic Coefficient (paper) 147-166
Soybean. See *Soja max*.
Species, new 32, 36, 636
Spelt. See *Triticum spelta*.
Spruce, Englemann. See *Picea engelmanni*.
Spurway, C. H. (paper): Soil Acidity and the Hydrolytic Ratio in Soils 659-672
Squawweed, syn. White snakeroot.
Staining, double, method used in diagnosing white-pine blister-rust 281-284
Statistical Study of Body Weights, Gains, and Measurements of Steers during the Fattening Period (paper) 383-394
Statistical Study of Some Indirect Effects of Certain Selections in Breeding Indian Corn, A (paper) 105-146
Steer—
  body weight during fattening period 383-394
  measurements during fattening period ... 383-394
  See also Cattle.
Steria, syn. White snakeroot.
Stevens, Neil (paper): Temperatures of the Cranberry Regions of the United States in Relation to the Growth of Certain Fungi. 521-529
Sticiocephala festina, effect of hydrocyanic-acid gas on 423
Stizolobium deeringianum—
  characteristic elements 675
  food value 673

Page

Stizolobium deeringianum—Continued.
structure of pod 673-674
structure of seed 674
Storage—
butter, factors in deterioration of 447-448
delay in, effect on apple-scald 311-312
Stripe disease of *Hordeum* spp., resemblance to bacterial-blight 625-627
Structure of the Pod and the Seed of the Georgia Velvet Bean, Stizolobium deeringianum (paper) 673-676
Studies in Greenhouse Fumigation with Hydrocyanic Acid: Physiological Effects on the Plant (paper) 319-338
Sulphur—
effect on different crops 91-103
sulphate—
effect on different crops 98-99
formation in seeds on germination 100
percentage in different crops 99-100
Swamp land, Gulf coast, use of rainfall data in drainage of 248

Taxus brevifolia, reproduction from seed stored in forest floor 3-26
Technic, field, in rod row tests 399-419
Temperature—
effect on apple-scald 295-299
effect on Jonathan-spot 289-291
index for *Fusicoccum putrefaciens* 525-528
index for *Glomerella cingulata* 525-528
influence on growth of *Diaporthe phaseolorum* 495
influence on soil hygroscopicity 156-159
of cattle during fattening 470-472
probable factor in wilt of *Linum usitatissimum* 581
relation to fungus growth on *Oxycoccus macrocarpus* 521-529
relation to growth of *Bacterium translucens* 635-636
Temperatures of the Cranberry Regions of the United States in Relation to the Growth of Certain Fungi (paper) 521-529
Tests of a Large-Sized Reinforced-Concrete Slab Subjected to Eccentric Concentrated Loads (paper) 505-520
Tests, rod row. See Rod row tests.
Thatcher, R. W. and Dahlberg, A. C. (paper): Enzyms of Milk and Butter 437-450
Thoroughwort. See *Eupatorium perfoliatum*.
Three-lined Fig-Tree Borer (paper) 371-382
See also *Ptychodes trilineatus*.
Timothy. See *Phleum pratense*.
Tires, disease of animals caused by *Eupatorium urticaefolium* 699-716
Tisdale, W. H. (paper): Flaxwilt: A Study of the Nature and Inheritance of Wilt Resistance 573-606
Tomato. See *Lycopersicon esculentum*.
Tree hopper. See *Stictocephala festina*.
Tree, reproduction by seed stored in forest floor 1-26
Trembles, disease of animals caused by *Eupatorium urticaefolium* 699-716

Page

Tricholoma spp., causes of fairy rings 196, 202
Trifolium pratense, effect of sulphur on 94-102
Triticum—
aestivum, effect of sulphur on 94-98, 100-103
spp.—
bacterial disease of, resemblance to bacterial-blight of *Hordeum* spp 629
technic in rod row tests 403-404, 406-408, 409-416
effect of fungus fairy rings on 231
spelta, bacterial disease of, resemblance to bacterial blight of *Hordeum* spp 629
Tsuga heterophylla, reproduction from seed stored in forest floor 1-26
Turnip. See *Brassica rapa*.
Tobacco. See *Nicotiana tabacum*.
Tuber sp., cause of fungus fairy rings 196
Tylenchus penetrans—
control 31
description of 32
habitat 32
hosts of 30
identification 30
injury to plants by 29-30
losses from 30-31
muscular powers 31
n. sp 32
parasite of—
Cinnamomum camphora 27, 30
Gossypium spp 27, 29
Solanum tuberosum 27, 29, 30, 31
Viola spp 27, 29

Urine, cattle, excretions in 454-455, 467-468

Velvet bean—
Florida. See *Stizolobium deeringianum*.
Georgia. See *Stizolobium deeringianum*.
Violet. See *Viola* spp.
Viola spp.—
host of *Tylenchus penetrans* 27, 29
injury caused by *Tylenchus penetrans* 29, 30
Vitis spp.—
host plant of *Macrosiphum illinoisensis* ... 83
occurrence of *Macrosiphum illinoisensis* on 83

Wandering-Jew. See *Zebrina pendula*.
Water—
absorption of hydrocyanic-acid gas by 430
soil, effect on movement of soluble salts through 539-544
See also Irrigation; Moisture, soil.
Weather—
effect on fruiting bodies of fungus fairy rings 208-217
relation to—
growth of cranberry fungi 523
growth of *Oxycoccus macrocarpus* 521-524
infection of *Phaseolus lunatus* by *Diaporthe phaseolorum* 489-491, 495
See also Humidity; Rainfall; Temperature.
Weir, W. N. (paper): Effect of Pumping from a Shallow Well on the Ground-Water Table 339-357
Well, shallow, effect of pumping on ground-water table 339-357

Page

Western wheat-grass. See Grass, western-wheat.
Wheat. See *Triticum*.
Wheat-grass, western. See Grass, western-wheat.
Wessels, P. H., et al. (paper): Reactions of the Phosphorus of the Thickened Root of the Flat Turnip..... 359–370
Wheeting, L. C., and McCool, M. M. (paper): Movement of Soluble Salts through Soils. 531–547
White, O. E. (paper): Inheritance Studies in Pisum. IV. Interrelation of the Genetic Factors of Pisum..... 167–190
White pine. See *Pinus strobus*.
White-pine blister-rust. See Blister-rust, white-pine.
White sanicle, syn. White snakeroot.
White snakeroot. See *Eupatorium urticaefolium*.
Whitetop, syn. White snakeroot.
Wild grape. See *Vitis* spp.

Page

Willaman, J. J., and Moore, William (paper): Studies in Greenhouse Fumigation with Hydrocyanic Acid..... 319–338
Wilt, flax. See *Fusarium lini*.
Worm, corn ear. See Corn earworm.

Yew, Pacific. See *Taxus brevifolia*.

Zea mays—
breeding for resistance to *Chlorideo obsoleta*..... 549–572
effect of hydrocyanic-acid gas on..... 423–428
indirect effects of selections in breeding. 105–146
protective characters against *Chloridea obsoleta*..... 550–568
selections for breeding with regard to—
chemical composition..... 105–146
physical characters..... 105–146
types..... 108–146
variability..... 108–146
Zebrina pendula, effect of hydrocyanic-acid gas on..... 426–428

ADDITIONAL COPIES
OF THIS PUBLICATION MAY BE PROCURED FROM
THE SUPERINTENDENT OF DOCUMENTS
GOVERNMENT PRINTING OFFICE
WASHINGTON, D. C.
AT
5 CENTS PER COPY
▽